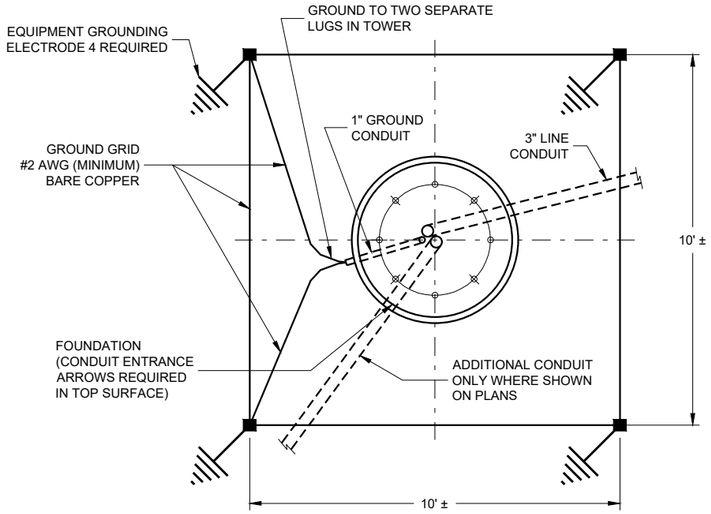
SDD 10A14-a Electrical Details High Mast Lighting



EQUIPMENT GROUNDING GRID AND FOUNDATION ELECTRICAL DETAILS

OVER CURRENT AND POWER CORD SCHEDULE

LINE VOLTAGE		HAND HOLE BREAKERS	INDIVIDUAL LUMINAIRE FUSES	POWER CORD	PRONGS ON LOAD BREAK DISCONNECT
1 - ϕ 120 / 240VAC:	3 WIRE	2 - 30A, 1P, 277VAC	20A	10 - 3 + GND "SO"	A, B, N, GND
1 - ϕ 240 / 480VAC:	3 WIRE	2 - 30A, 1P, 277VAC	10A	10 - 3 + GND "SO"	A, B, N, GND
3 - ϕ 480Y / 277VAC:	4 WIRE	3 - 30A, 1P, 277VAC	10A	10 - 4 + GND "SO"	X, Y, Z, N, GND
3 - ϕ 208Y/ 120VAC:	4 WIRE	3 - 30A, 1P, 277VAC	20A	10 - 4 + GND "SO"	X, Y, Z, N, GND
1 - ϕ 480VAC:	2 WIRE	1 - 20A, 2P, 600VAC	5A	10 - 3 + GND "SO"	A, B, N, GND

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

IN CASES WHERE THE PLANS SHOW LINE IN/LINE OUT DISTRIBUTION SYSTEMS, FURNISH FEED-THROUGH LUGS IN THE CIRCUIT BREAKER ENCLOSURE.

THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.

FIELD RECODING OF UNGROUNDED CONDUCTORS IN TYPE "SO" CABLE MAY BE REQUIRED TO CONFORM TO SYSTEM COLOR CODING AS SHOWN IN THE PLANS.

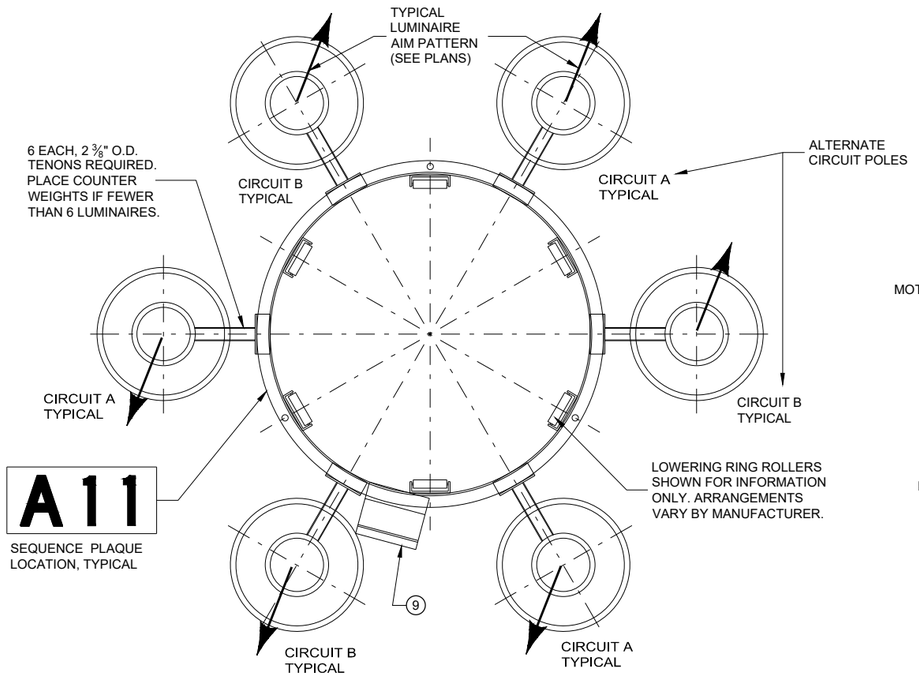
USE TIME DELAY FUSE PER LUMINAIRE MANUFACTURER RECOMMENDATION.

CIRCUIT BREAKERS SHALL BE MINIMUM 14 kAIC AT THE VOLTAGE SHOWN.

LOADBREAK DISCONNECTS SHALL BE MELTRIC TYPE "DR", 30 AMP, 600 VOLT. DO NOT SUBSTITUTE. FURNISH "FDP" FINGER/PALM DRAW PLATES (APPLIES TO THE PLUG AND RECEPTACLE ONLY, NOT TO THE APPLIANCE INLET). FURNISH "LP" MOISTURE PROTECTION (APPLIES TO THE PLUG ONLY, NOT TO THE RECEPTACLE OR THE APPLIANCE INLET).

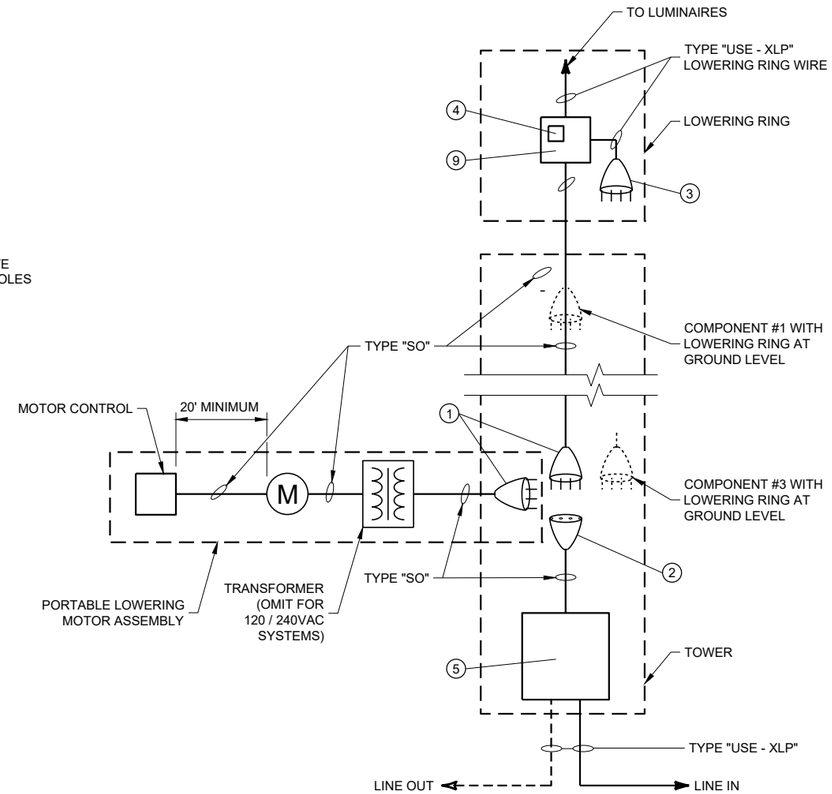
SURGE ARRESTORS SHALL BE 650 VAC, 2P OR 3P AS REQUIRED.

CIRCUIT BREAKER ENCLOSURES SHALL BE NEMA 1, 100 AMP, 600 VOLT, 2P OR 3P AS REQUIRED, SURFACE MOUNT. IN ALL SYSTEMS, FURNISH A MINIMUM 4 - TERMINAL GROUND BUS. IN ISOLATED NEUTRAL SYSTEMS, ADDITIONALLY FURNISH A MINIMUM 1-TERMINAL NEUTRAL BUS. BUSSES SHALL BE RATED FOR NO. 10 AWG THROUGH NO. 2 AWG CU.



LOWERING RING OPTICS PLAN

1 - ϕ CASE SHOWN; 3 - ϕ CASE SIMILAR



ONE LINE DIAGRAM

ANY LINE VOLTAGE PER OVER CURRENT AND POWER CORD SCHEDULE

LEGEND

P POLE (ELECTRICAL CIRCUIT)

ϕ PHASE (ELECTRICAL CURRENT)

EQUIPMENT GROUNDING ELECTRODE

■ EXOTHERMIC WELD

1. LOADBREAK DISCONNECT - MALE PLUG
2. LOADBREAK DISCONNECT - FEMALE RECEPTACLE
3. LOADBREAK DISCONNECT - MALE APPLIANCE INLET
4. SURGE ARRESTOR - 2P OR 3P AS REQUIRED
5. CIRCUIT BREAKER ENCLOSURE
6. CIRCUIT BREAKER
7. CIRCUIT BREAKER ENCLOSURE NEUTRAL BUS
8. CIRCUIT BREAKER ENCLOSURE EQUIPMENT GROUNDING BUS
9. LOWERING RING JUNCTION BOX (WEEP HOLE REQUIRED)
10. TERMINAL STRIP

ELECTRICAL DETAILS HIGH MAST LIGHTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Electrical Details High Mast Lighting

References:

FDM15-5 Attachment 30.5 and 30.6 for conventional symbols.
Standard Spec. 660 High Mast Lowering Assemblies

Bid items associated with this drawing:

ITEM NUMBER	DESCRIPTION	UNIT
532.4500 - 4599	High Mast (height) (structure)	EACH
659.0400	Luminaires High Mast Lighting LED	EACH
660.0500	High Mast Lowering Assembly (structure)	EACH

Standardized Special Provisions associated with this drawing:

STSP NUMBER	TITLE
659.XXXX.S	Lamp, Ballast, LED, Switch Disposal by Vendor
659.XXXX.S	Lamp, Ballast, LED, Switch Disposal by Department

Other SDDs associated with this drawing:

SDD 10A1 Electrical Handhole Wiring

Design Notes:

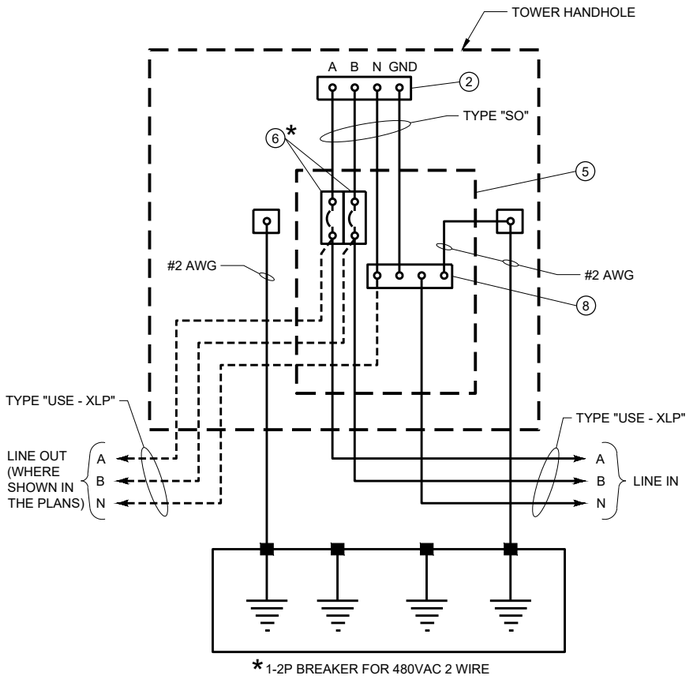
120/240 VAC systems support only 4 luminaires per tower, with no expansion capacity. Otherwise, use 240/480 VAC or 480Y/277 VAC. The Detail shows 6 required luminaire tenons, as 120/240 VAC systems can be converted to higher voltages with minimal changes to the tower wiring systems. Use this SDD in conjunction with the SDD for Electrical Handhole Wiring.

High mast structure foundations will be designed site-by-site. High mast shafts and lowering systems will be on the basis of design-build under Standard Spec 532 and 660. Only the electrical details shown in this SDD and described in Standard Spec 659 (high mast luminaires) and 660 are standard.

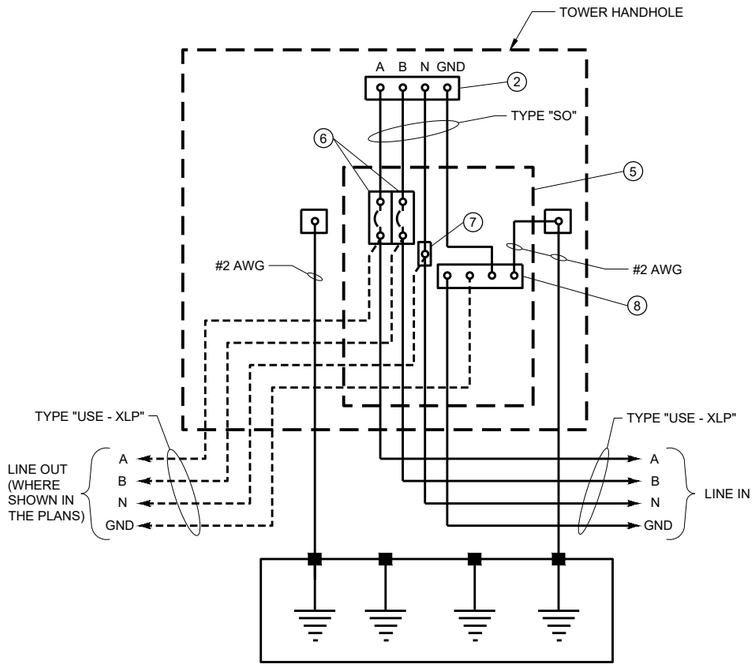
Contact Person:

Ahmet Demirbilek (414) 220-6801
(414) 322-9606 (Mobile)

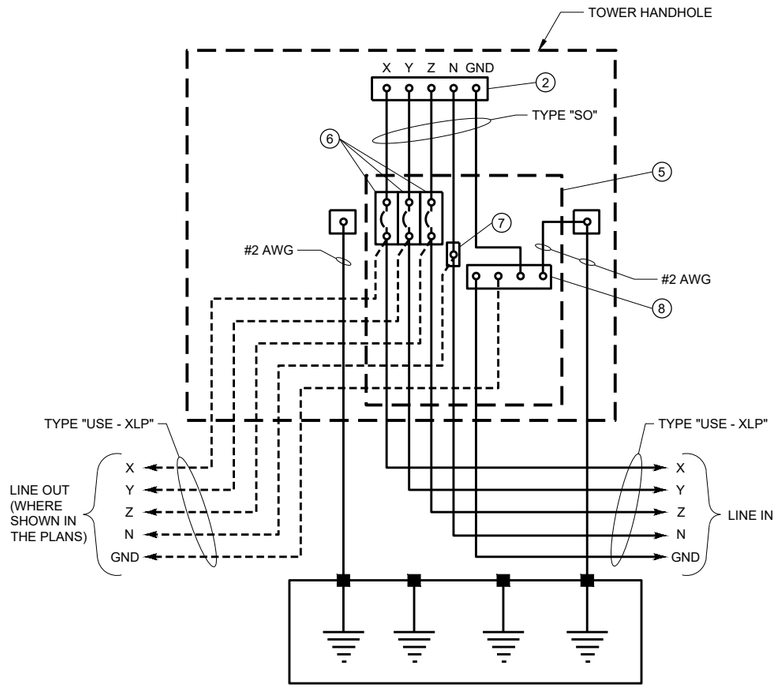
SDD 10A14-b Electrical Details High Mast Lighting



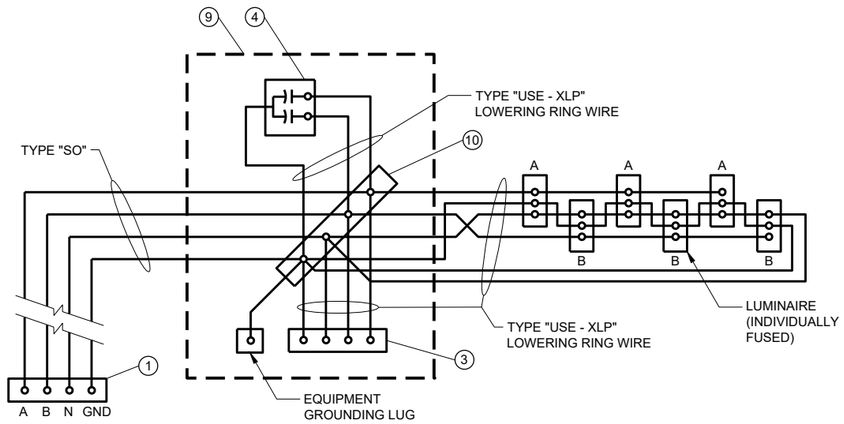
TYPICAL WIRING DIAGRAM-HANDHOLE
GROUNDED NEUTRAL SYSTEM
1 - ϕ 240 / 480VAC 3 WIRE OR 480VAC 2 WIRE



TYPICAL WIRING DIAGRAM-HANDHOLE
ISOLATED NEUTRAL SYSTEM
1 - ϕ 120 / 240VAC OR 240 / 480VAC 3 WIRE



TYPICAL WIRING DIAGRAM-HANDHOLE
ISOLATED NEUTRAL SYSTEM
3 - ϕ 480 / 277VAC 4 WIRE OR 3 - ϕ 208Y / 120VAC 4 WIRE



LOWERING RING JUNCTION BOX WIRING DIAGRAM
TYPICAL 1 - ϕ CASE SHOWN; 3 - ϕ CASE SIMILAR

LEGEND

A, B, X, Y, Z,	UNGROUNDED CIRCUIT CONDUCTORS
N	GROUNDED CIRCUIT CONDUCTORS
GND	EQUIPMENT GROUNDING CONDUCTOR
P	POLE (ELECTRICAL CIRCUIT)
ϕ	PHASE (ELECTRICAL CURRENT)
AIC	AMPERE INTERUPTING CAPACITY
	HANDHOLE GROUND LUG
	CIRCUIT BREAKER 1P
	SURGE ARRESTOR
	FUSED LUMINAIRE
	EQUIPMENT GROUNDING ELECTRODE
	TERMINAL
	SPLICE
	CONDUCTOR
	EXOTHERMIC WELD

1. LOADBREAK DISCONNECT - MALE PLUG
2. LOADBREAK DISCONNECT - FEMALE RECEPTACLE
3. LOADBREAK DISCONNECT - MALE APPLIANCE INLET
4. SURGE ARRESTOR - 2P OR 3P AS REQUIRED
5. CIRCUIT BREAKER ENCLOSURE
6. CIRCUIT BREAKER
7. CIRCUIT BREAKER ENCLOSURE NEUTRAL BUS
8. CIRCUIT BREAKER ENCLOSURE EQUIPMENT GROUNDING BUS
9. LOWERING RING JUNCTION BOX (WEEP HOLE REQUIRED)
10. TERMINAL STRIP

ELECTRICAL DETAILS HIGH MAST LIGHTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER

FHWA

SDD 10A14 - 03b

SDD 10A14 - 03b

References:

FDM15-5 Attachment 30.5 and 30.6 for conventional symbols.
Standard Spec. 655 Electrical Wiring

Bid items associated with this drawing:

ITEM NUMBER	DESCRIPTION
655.0600 - 0699	Electrical Wire Lighting (AWG) ..... EACH

Standardized Special Provisions associated with this drawing:

STSP NUMBER	TITLE
NONE	

Other SDDs associated with this drawing:

SDD 10A14	Electrical Details High Mast Lighting sheet "a" must be used in conjunction with this drawing.

Design Notes:

See guidance for SDD 10a14 sheet "a".

Contact Person:

Ahmet Demirbilek (414) 220-6801
(414) 322-9606 (Mobile)